

Public Health Risk Assessment

Risk assessment is a systematic scientific tool that provides an important foundation in developing risk management strategies, policies, and regulations.

Purpose: To evaluate the available information to determine whether exposure to substances might cause harm to human health.

Asks: Are people exposed to substances at high enough levels for long enough periods of time to cause harm?

Components of Risk Assessment:

1. Hazard Identification
2. Exposure Assessment
3. Toxicity Assessment (health effects evaluation & dose-response assessment)
4. Risk Characterization



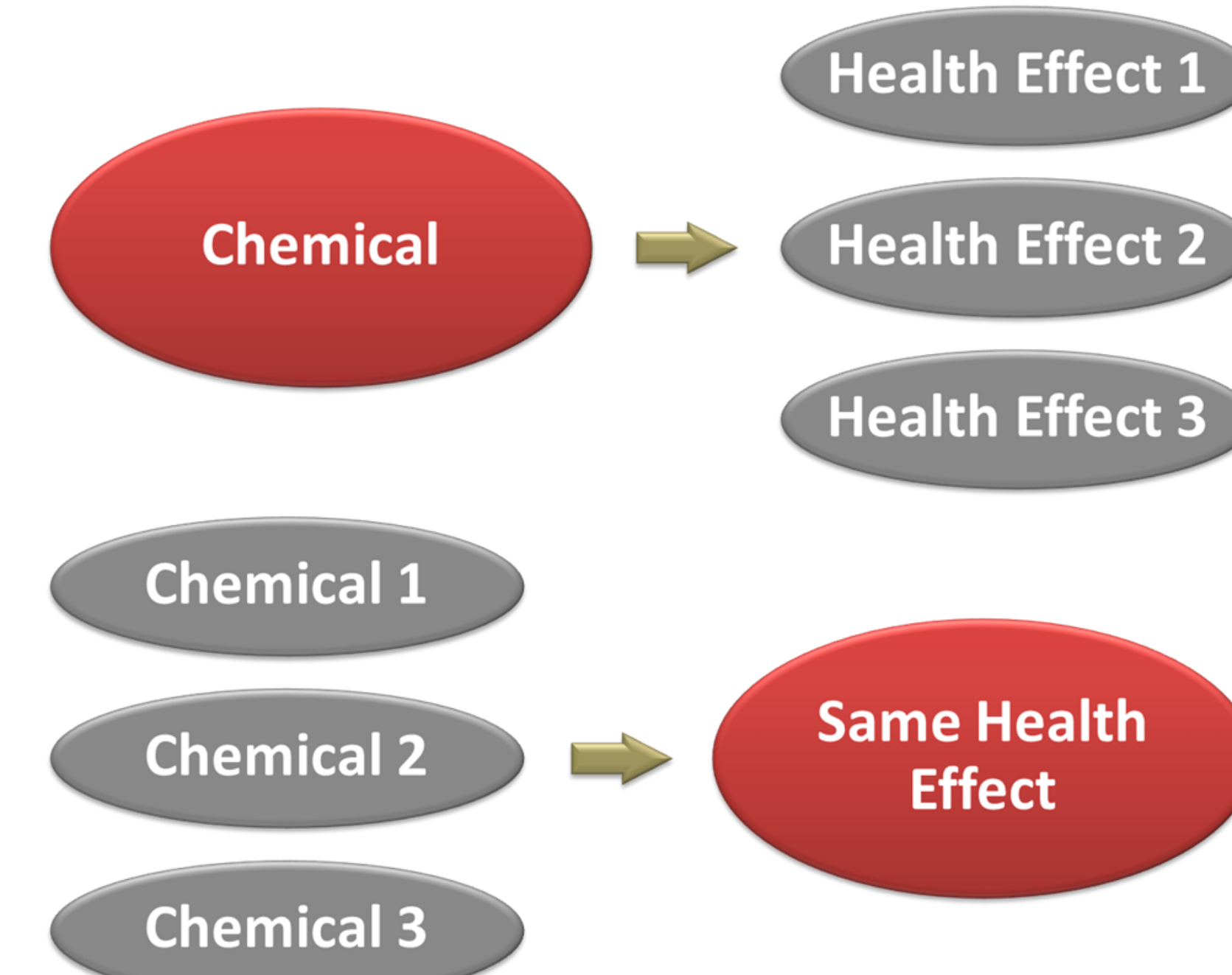
Office of Environmental Health
Environmental Toxicology Program

Considers:

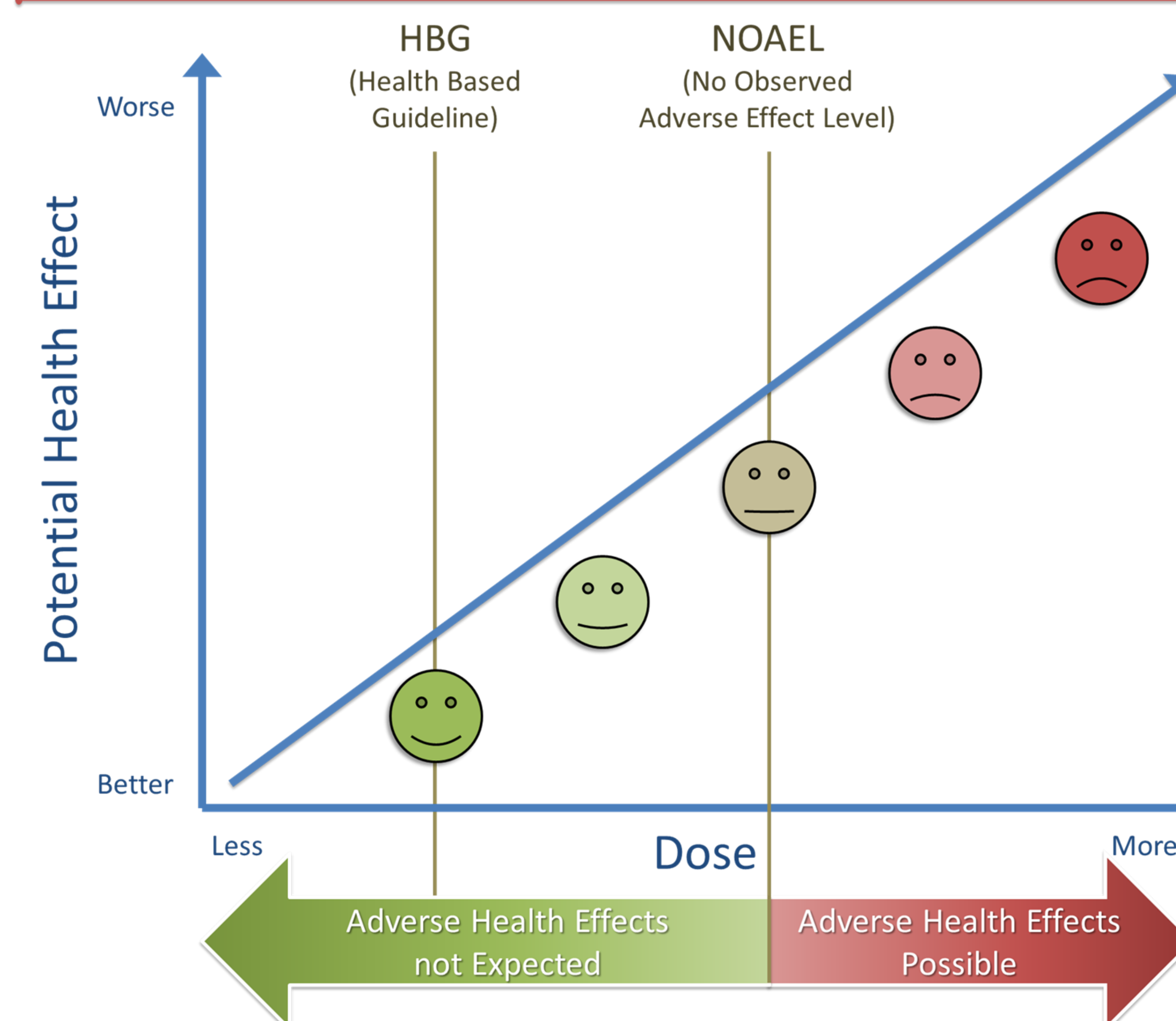
- Toxicity of chemicals or substances present
- Levels (concentrations) of hazardous chemicals present
- Likelihood that people might come into contact with chemicals
- Exposure pathways
- How chemicals might harm people
- Potential health impacts on populations living near the substance source
- Other potential dangers

Health Effects

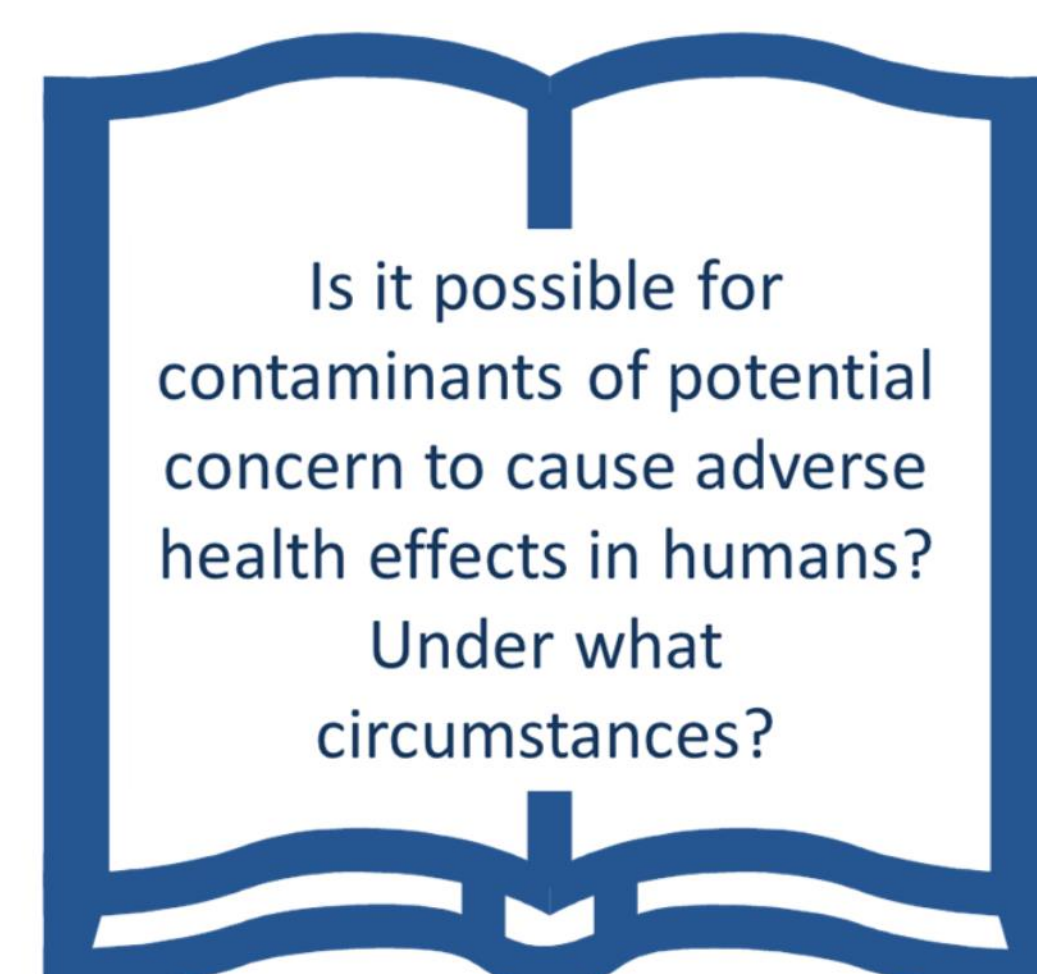
- What are the potential health effects of the contaminants of potential concern?
- Can they cause cancer?
- Are their different health effects from different exposure scenarios?
- Can one chemical cause several health effects?
- Can several chemicals cause the same health effect?



Dose-Response



Hazard Identification



Review Scientific Literature



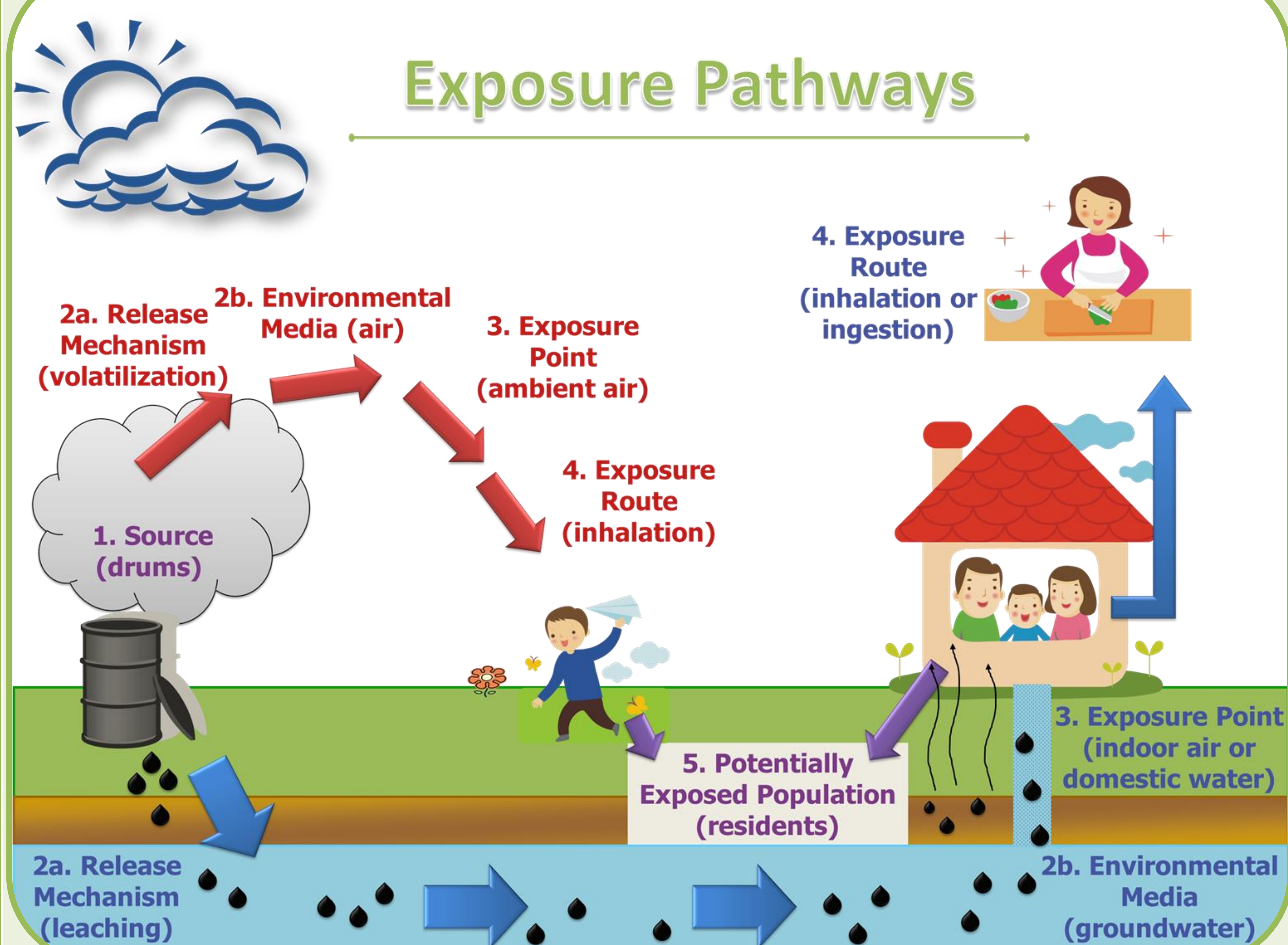
1 Hazard Identification

2 Exposure Assessment

3 Health Effects Evaluation & Dose-Response Assessment

4 Risk Characterization

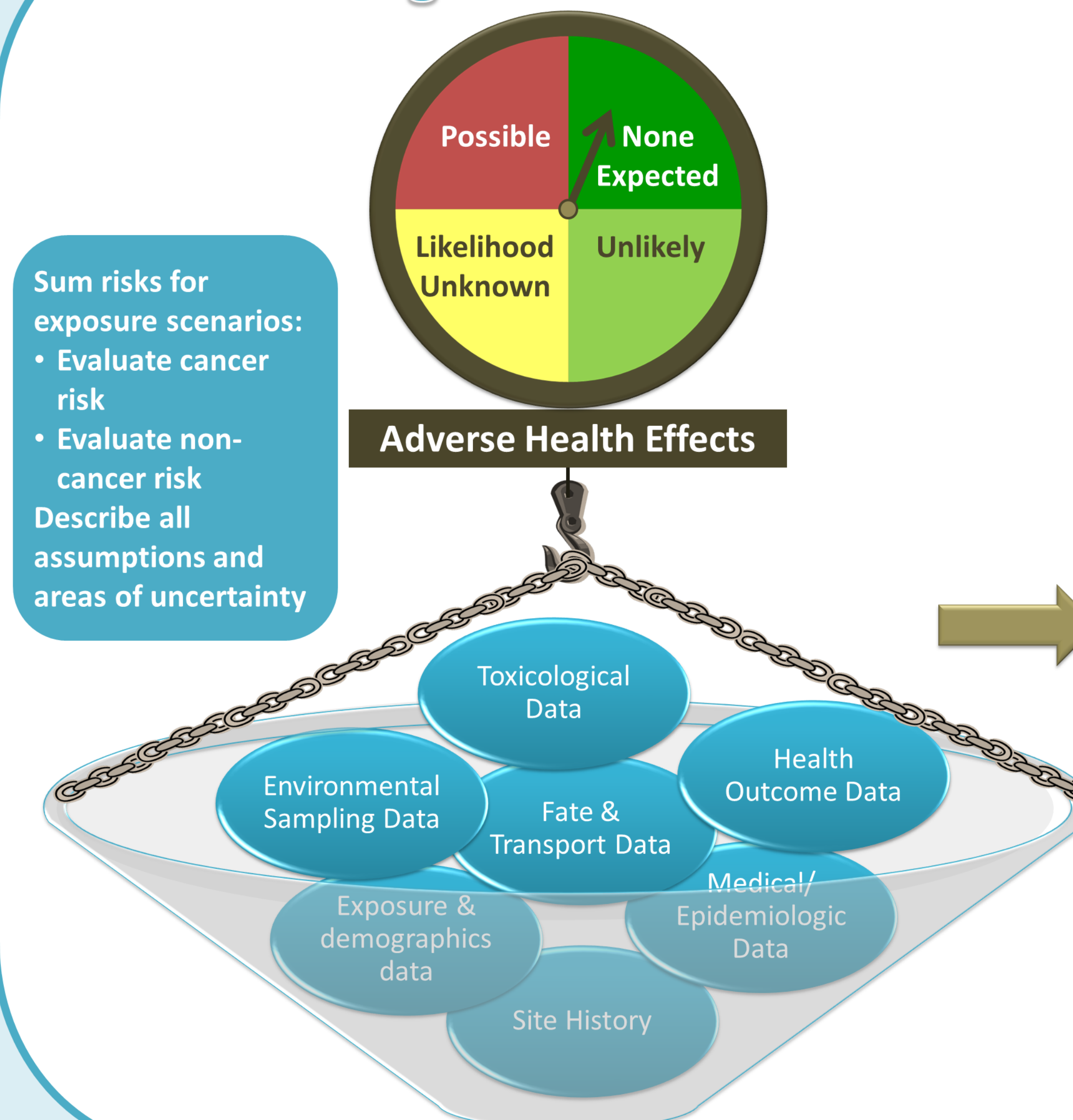
Exposure Pathways



Exposure Estimates

- How often are people exposed?
- How long are people exposed?
- What is the likelihood of non-cancer health effects?
- What is the likelihood of cancer health effects?
- Are especially sensitive people exposed?

Weight of Evidence



Risk Characterization:

Combine relevant information, weighing the evidence, to draw public health conclusions

